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# On the importance of the forest tree *Parinari excelsa* in the diet of Brown-necked Parrots *Poicephalus robustus* in Malaŵi–Zambia

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De l'importance de l'arbre forestier *Parinari excelsa* dans le régime alimentaire des Perroquets robustes *Poicephalus robustus* au Malawi-Zambie. Le Perroquet robuste *Poicephalus robustus* de la race *suahelicus* est parfois considéré comme appartenant à une espèce distincte (*P. fuscicollis*), notamment en raison de son écologie 'savanicole'. Toutefois l'auteur rappelle qu'en Afrique centrale (Malawi-Zambie) cette population passe une partie importante de l'année à se nourrir dans les forêts de montagne, essentiellement des graines de *Parinari excelsa*. Les méthodes d'extraction des graines de *P. excelsa* et de l'espèce de savane *P. curatellifolia* sont brièvement comparées.

The Brown-necked Parrot *Poicephalus robustus* comprises three subspecies: the nominate is endemic to South Africa and is mainly restricted to montane forest (Rowan 1983, Wirminghaus *et al.* 2002a); *P. r. suahelicus* is widespread in the Zambezian savannas from Angola across to Tanzania and Mozambique, south to Zimbabwe and the Transvaal (Benson *et al.* 1988); *P. r. fuscicollis* occurs sparingly in West Africa, from Nigeria to Senegambia (Borrow & Demey 2001); whilst a small population from the forests of Cabinda and north-west Angola has been attributed to *fuscicollis* (Pinto 1983), but has also been considered intermediate between *fuscicollis* and *suahelicus* (Benson *et al.* 1988). It has been suggested recently that the nominate race might be a species, Cape Parrot, based on morphometric characters (Clancey 1997), with *suahelicus* and *fuscicollis* united in another species, the Grey-headed Parrot *P. fuscicollis* (Wirminghaus *et al.* 2002b). Sibley & Monroe (1990) have proposed two groups within *P. robustus*, and give the name Brown-necked Parrot *P. suahelicus* (1898) to the non-nominate form, overlooking the fact that *fuscicollis* (1820) pre-dates *suahelicus* by 78 years; the name *P. suahelicus* also used by Stevenson & Fanshawe (2002) is thus incorrect. An additional argument in the taxonomic debate is the difference in feeding ecology between *suahelicus* and *robustus*: the former being found mainly in savanna woodland and the latter in montane forest (Symes & Perrin 2003, Wirminghaus *et al.* 2002a,b). The feeding ecology of *P. r. fuscicollis* is virtually undescribed.

Symes & Perrin (2003) presented a review of feeding habits and food plants of the race *suahelicus* in the Transvaal (South Africa) and elsewhere; in this they stress the importance of seed crops of the savanna tree *Parinari curatellifolia*, which Brown-necked Parrots visit en masse in the post-breeding season. The authors did not, however, list the forest tree *Parinari excelsa* in their review table, although the species was mentioned as an important food plant in two earlier publications (Dowsett-Lemaire 1988, 1989). This note provides further details on the timing and regularity of movements of Brown-necked Parrots to the montane forests of Malaŵi and north-east Zambia when *Parinari excelsa* are fruiting; the feeding technique relating to the extraction of seeds of *P. excelsa* appears to differ from the way the smaller fruits of *P. curatellifolia* are usually tackled.

*Parinari excelsa* is a large evergreen tree widespread from West Africa to montane eastern Africa (Tanzania, Malaŵi and Mozambique); it is found mainly in drier types of Guineo-Congolian rain forest, on its periphery and at higher altitudes (as on the Fouta Djallon Plateau of Guinea) and in eastern Africa is confined to Afromontane rain forest. The fruit (as in all *Parinari* species) is a drupe with a thin layer of foetid flesh covering a large woody endocarp, itself containing two seeds; each seed germinates through a hole in the endocarp. R. J. Dowsett and I were resident on the Nyika Plateau in northern Malaŵi and adjacent north-east Zambia from October 1979 to March 1982, and visited the area on shorter occasions in other years. *Parinari excelsa* is a fairly common 30-

m-tall tree in the forest patches of the south-western escarpment, on both sides of the international border at an altitude of 1,950–2,150 m. The fruiting season extends from November to February and massive crops are produced each year.

In 1979–1982 we observed small flocks of Brown-necked Parrots visit montane forest annually, from late November or early December to the end of January, once as late as 20 February (1982). We also noticed them on other visits, in December 1973 (RJD, flock of 25 in Chowo forest, Zambia), December 1977 (up to 20, Zambian side) and January 1983, and there have been further reports in subsequent years, as in January–February 1995 (D. Foot unpubl.). When they first appear, Brown-necked Parrots may still be feeding dependent fledglings: thus, on 24 November 1980, a pair was seen with an immature to which the female was regurgitating seeds of *Parinari excelsa*. On one occasion (February 1982) several parrots fed in a fruiting *Cola greenwayi* (the tree being underlain with broken nuts, emptied of their seeds), and in December 1979 two small groups were observed in the canopy of fruiting *Aningeria adolfi-friedericii* (feeding method not noted), otherwise all observations relate to parrots feeding in *P. excelsa*, throughout November–February. A common sight (and smell) at that time is of dozens of fallen *Parinari* fruits littering the forest floor under every tree, with flesh peeled off and rotting. Parrots peel the thin green flesh from the fruit with their bill while holding it with one foot, and then extract the two oily seeds encased inside the large woody endocarp. The ellipsoid or subspherical fruits of *P. excelsa* are very much larger than those of *P. curatellifolia*, measuring up to 4 x 6 cm; dried fruits (basically the endocarps) collected in Malaŵi often measure 2.5 x 4 or 5 cm, and the germination holes are at least 5–6 mm in diameter. Due to the height of the trees and density of foliage it was not possible to observe how parrots extracted the seeds from the endocarp, but examination of many fruits dropped by the birds below the tree showed each of the two seeds had apparently been taken out through the germination hole, with the woody endocarp left intact. The endocarp is extremely hard to break, as we required a hammer and a large stone in order to achieve this. Incidentally, the seeds of *Parinari* are very tasty and would no

doubt be exploited by humans if there was an easier method of extracting them.

In contrast, the endocarps of fruits of *P. curatellifolia* are usually cracked open while they are still immature and soft, and this method of seed extraction is used for many other species (Symes & Perrin 2003). In some cases, however, parrots failed to crack the endocarp open, and 'the mandible was used to access two kernels [meaning seeds] through two weak points on the seed' [meaning the two germination holes in the endocarp]: p.53 in Symes & Perrin. This does not seem to differ greatly from the method apparently employed with *P. excelsa*.

The feeding ecology of *P. r. fuscicollis* in West Africa remains to be investigated, but there are many species in common between the woodlands and dry forests of West and south-central Africa that are known food plants of *P. r. suahelicus*, including both *Parinari excelsa* and *P. curatellifolia*, as well as *Adansonia digitata*, *Diospyros mespiliformis*, *Sclerocarya*, *Syzygium* spp.

To conclude, although our knowledge of the feeding requirements of the Brown-necked Parrot is still very incomplete, montane forests are evidently an important habitat for *P. r. suahelicus* at least seasonally; thus it may be premature to use the ecological argument in taxonomic discussions on the distinctiveness of the 'forest race' *P. r. robustus*.

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### References

- Benson, C. W., Benson, F. M., Stuart, S. N. & Fry, C. H. 1988. Psittaciformes. In Fry, C. H., Keith, S. & Urban, E.K. (eds) *The Birds of Africa*. Vol. 3. London, UK: Academic Press.
- Borrow, N. & Demey, R. 2001. *Birds of Western Africa*. London, UK: Christopher Helm.
- Clancey, P. A. 1997. The Cape Parrot: an additional valid species. *Honeyguide* 43: 61–62.
- Dowsett-Lemaire, F. 1988. Fruit choice and seed dissemination by birds and mammals in the evergreen forests of upland Malawi. *Revue d'Ecologie (Terre et Vie)* 43: 251–285.

- Dowsett-Lemaire, F. 1989. Ecological and biogeographical aspects of forest bird communities in Malawi. *Scopus* 13: 1–80.
- Pinto, A. A. da Rosa 1983. *Ornitologia de Angola*. Vol. 1. Lisbon: Inst. Invest. Cient. Trop.
- Rowan, M. K. 1983. *The Doves, Parrots, Louries & Cuckoos of Southern Africa*. Cape Town: J. Voelcker Bird Book Fund.
- Sibley, C. G. & Monroe, B. L. 1990. *Distribution and Taxonomy of Birds of the World*. New Haven & London, UK: Yale University Press.
- Stevenson, T. & Fanshawe, J. 2002. *Field Guide to the Birds of East Africa*. London, UK: T. & A.D. Poyser.
- Symes, C. T. & Perrin, M. R. 2003. Feeding biology of the Greyheaded Parrot, *Poicephalus fuscicollis suaehelicus* (Reichenow), in Northern Province, South Africa. *Emu* 103: 49–58.
- Wirminghaus, J. O., Downs, C. T., Symes, C. T. & Perrin, M. R. 2002a. Diet of the Cape Parrot, *Poicephalus robustus*, in Afromontane forests in KwaZulu-Natal, South Africa. *Ostrich* 73: 20–25.
- Wirminghaus, J. O., Downs, C. T., Perrin, M. R. & Symes, C. T. 2002b. Taxonomic relationships of the subspecies of the Cape Parrot *Poicephalus robustus* (Gmelin). *J. Nat. Hist.* 36: 361–378.

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